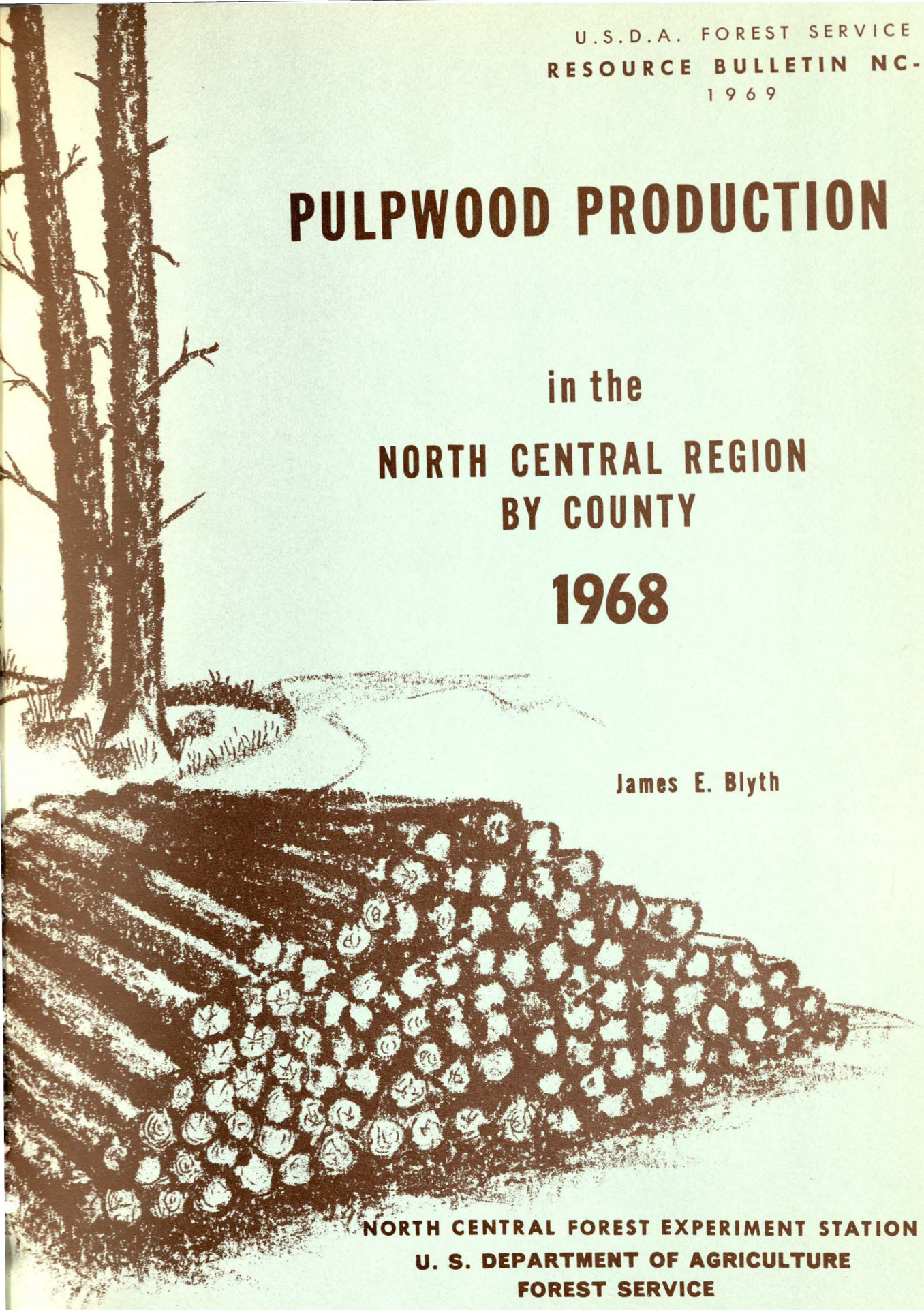
U.S.D.A. FOREST SERVICE
RESOURCE BULLETIN NC-8
1969

PULPWOOD PRODUCTION

in the

NORTH CENTRAL REGION
BY COUNTY

1968



James E. Blyth

NORTH CENTRAL FOREST EXPERIMENT STATION
U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Pulpwood Production In the North Central Region, By County, 1968

James E. Blyth

THE AUTHOR is a Market Analyst on the staff of the North Central Forest Experiment Station. He is headquartered at the Station's main office in St. Paul, Minnesota, which is maintained in cooperation with the University of Minnesota.

NORTH CENTRAL FOREST EXPERIMENT STATION
D. B. King, Director
FOREST SERVICE — U.S. DEPARTMENT OF AGRICULTURE
Folwell Avenue
St. Paul, Minnesota 55101

Pulpwood Production In the North Central Region, By County, 1968

James E. Blyth

This is the 10th annual report on the pulpwood harvest in Lake States counties and the ninth annual report on the Central States harvest. The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States — more detailed data published on pulpwood production and consumption in the Central States would reveal the operations of individual mills.

The pulpmills using North Central States timber in 1968 reported their pulpwood receipts by State and county. Their cooperation is gratefully acknowledged. Thanks are due also to Ray Pfeifer, Staff Forester, Forest Resource Development, Michigan Department of Natural Resources, for collecting data on the Michigan pulpmills.

LAKE STATES

Pulpwood production and receipts dipped to the lowest level since 1962.[1] The primary reason for the small harvest was a substantial cutback in pulpwood inventories at several Wisconsin mills. Inventories were cut during 1968 to reduce overhead costs and to prevent wood quality deterioration in the wood yards.

Production Falls 10 Percent

Pulpwood production was 3,552,000 cords, 413,000 cords less than in 1967. All but 45,000 cords of local wood remained in the Lake States. Roundwood constituted 93 percent of the total production; the balance was residues from local wood-using plants. Lake States wood residues[2] received for pulping were up 44,000 cords from 1967. Four-fifths of the residues were delivered to pulpmills as chips.

Lake States roundwood production fell 457,000 cords in 1968, of which 224,000 cords were aspen, 105,000 cords were miscellaneous hardwoods, and 99,000 cords were spruce. Pine harvesting increased slightly.

Only 20 percent of the harvested roundwood was peeled before delivery, compared to 23 percent in 1967. Nearly all of the peeled wood was aspen. Loggers peeled half of the aspen cut in Wisconsin, more than one-third in Michigan, and nearly one-fifth in Minnesota (fig. 1). The proportion of peeled aspen varied greatly by Survey Unit in Michigan and Minnesota but was more uniform in Wisconsin.

[1] *Pulpwood production is defined as the pulpwood volume from timber lands in a specified area that was received at all mills during 1968, whereas pulpwood receipts are defined as the volume of wood received by mills in a specified area regardless of the geographic source.*

[2] *Residues are by-products from sawmills, veneer mills, cooperage mills, and other wood-using plants that are used for pulping. Residues include slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from these by-products.*

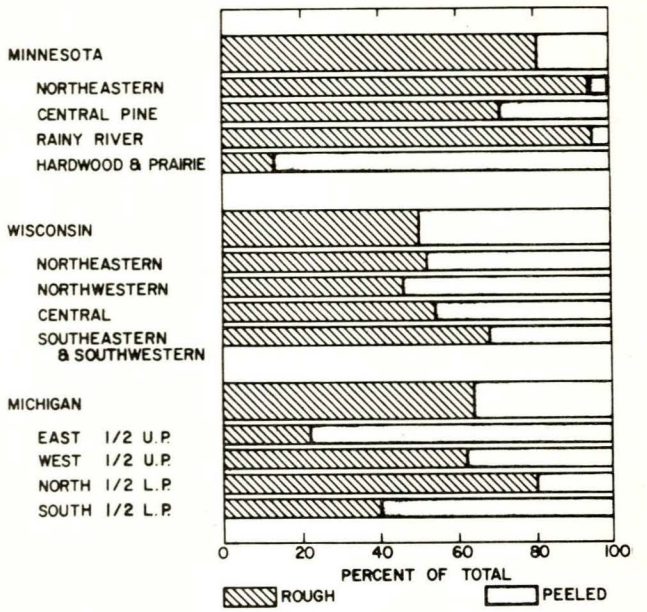


Figure 1. — Percent of rough and peeled aspen production of roundwood, by State and Forest Survey Unit, 1968.

Receipts Dip 467,000 Cords

The 46 Lake States plants received about 4 million cords of pulpwood in 1968, down 10 percent from 1967. Aspen and spruce deliveries fell sharply. All of the decline occurred in Wisconsin, where receipts plunged one-half million cords. Receipts remained steady in Michigan and were up 35,000 cords in Minnesota.

Of the 46 Lake States plants, 38 use aspen, 23 use spruce, and 20 use balsam fir (table 1).

Procurement of plant residues continued to climb and constituted 10 percent of the pulpwood shipments to regional mills in 1968, up 60,000 cords from 1967. Purchases of plant residues by Lake States mills rose each year from only 14,000 cords in 1960 to 197,000 cords in 1964, and to 392,000 cords in 1968.

The region is a large net importer of pulpwood (table 2). Wisconsin mills bought more than 70 percent of these imports with the remainder divided almost equally between Minnesota and Michigan. Canada supplied 166,000 cords of spruce roundwood and western States furnished 141,000 cords of softwood chips.

Table 1. — *Number of plants using the different species of wood for pulping in 1968*

Species and kind of material	Lake States	Minn.	Wis.	Mich.
Aspen	38	9	21	8
Balsam fir	20	5	11	4
Birch	9	1	8	--
Hemlock	6	--	5	1
Pine	12	3	5	4
Spruce	23	5	14	4
Tamarack	4	1	3	--
Misc. hardwoods	14	2	8	4
Wood chips	11	2	6	3
Slabwood and other residue	7	--	5	2
Total plants	46	9	27	10

Table 2. — *Pulpwood exports and imports for the Lake States, 1968*
(Thousand standard cords, unpeeled)

Species	Exports	Imports	Net imports
Aspen	2	13	11
Balsam fir	2	14	12
Pine	2	138	136
Spruce	19	166	147
Mixed hardwoods	5	6	1
Residues, softwood	7	141	134
Residues, hardwood	8	8	0
Total	45	486	441

Regional Active Mill Capacity Rises Slightly, Despite Closing of Three Mills

A new kraft pulpmill and increased capacity at several other mills more than offset the capacity lost due to the closing of three sulfite mills in the Lake States. Kraft mill capacity is now 2,175 tons per day (table 3), an increase of 485 tons from 1967. Based upon past wood use by type of process, the additional kraft mill capacity will tend to increase the use of pine in the Lake States, whereas the sulfite mill closings will tend to decrease the use of balsam fir and spruce.

Table 3. — *Active woodpulp mills in the Lake States, by location, type of pulp produced, and capacity, 1968*

Company	Location	Mill capacity in tons per 24 hours[1/]				
		Total	Sulfite	Sulfate	Groundwood and other mechanical	Semi-chemical
Minnesota:						
Blandin Paper Co.	Grand Rapids	205	--	--	205	--
Hennepin Paper Co.	Little Falls	65	--	--	65	--
Boise Cascade Corp.	International Falls	675	--	225	450	--
Northwest Paper Co., The	Cloquet	420	115	305	--	--
Nu-Ply Corp.	Bemidji	75	--	--	75	--
St. Regis Paper Co.	Sartell	125	--	--	125	--
Superwood Corp.	Duluth	240	--	--	240	--
Hoerner Waldorf Corp.	St. Paul	300	--	--	--	300
Conwed Corp.	Cloquet	350	--	--	350	--
Total	9 plants	2,455	115	530	1,510	300
Wisconsin:						
American Can Co.	Green Bay	235	145	--	90	--
American Can Co.	Rothschild	180	180	--	--	--
Badger Paper Mills, Inc.	Peshtigo	90	90	--	--	--
Combined Paper Mills, Inc.	Combined Locks	175	--	--	175	--
Consolidated Papers, Inc.	Appleton	155	155	--	--	--
Consolidated Papers, Inc.	Stevens Point	110	--	--	110	--
Consolidated Papers, Inc.	Wisconsin Rapids	645	--	350	295	--
Green Bay Packaging, Inc.	Green Bay	200	--	--	--	200
Kansas City Star Co.	Park Falls	115	115	--	--	--
Kimberly-Clark Corp.	Kimberly	150	--	--	150	--
Kimberly-Clark Corp.	Niagara	150	--	--	150	--
Mosinee Paper Mills Co.	Mosinee	200	--	200	--	--
Nekoosa-Edwards Paper Co.	Nekoosa	310	--	310	--	--
Nekoosa-Edwards Paper Co.	Port Edwards	215	215	--	--	--
Owens-Illinois	Tomahawk	615	--	--	--	615
Procter & Gamble Co.	Green Bay	2/	2/	--	2/	--
Procter & Gamble Co.	Little Rapids	2/	--	--	2/	--
Scott Paper Co.	Marinette	50	50	--	--	--
Scott Paper Co.	Oconto Falls	110	110	--	--	--
St. Regis Paper Co.	Rhinelander	110	110	--	--	--
St. Regis Paper Co.	Cornell	50	--	--	50	--
Sterling Pulp & Paper Co.	Eau Claire	75	--	--	75	--
Superior Fiber Products Co.	Superior	180	--	--	180	--
Thilmany Pulp & Paper Co.	Kaukauna	360	--	360	--	--
Tomahawk Pulp Co., Inc.	Tomahawk	50	--	--	50	--
Wausau Paper Mills Co.	Brokaw	145	145	--	--	--
Wisconsin Wood Products, Inc.	Phillips	50	--	--	50	--
Total	27 plants	4,725	1,315	1,220	1,375	815
Michigan:						
Abitibi Corp.	Alpena	300	--	--	300	--
Celotex Corp.	L'Anse	270	--	--	270	--
Hoerner Waldorf Corp.	Ontonagon	250	--	--	--	250
Manistique Pulp & Paper Co.	Manistique	90	--	--	90	--
Mead Corp., The	Groos	100	--	--	100	--
Menasha Corp.	Otsego	225	--	--	--	225
Packaging Corp. of America	Filer City	600	--	200	--	400
Scott Paper Co.	Detroit	170	170	--	--	--
Scott Paper Co.	Menominee	20	--	--	20	--
Warren Co., S.D.	Muskegon	225	--	225	--	--
Total	10 plants	2,250	170	425	780	875
All States	46 plants	9,430	1,600	2,175	3,665	1,990

1/ Lockwood's Directory of the Paper and Allied Industries-1969, and 1969 Directory of the Forest Products Industry.

2/ Capacity not available.

New Pulping Capacity Planned for 1971

An additional 750 tons per day of pulping capacity is planned in Michigan for start-up during the second half of 1971. The capacity would include a 600 ton-per-day kraft mill and a 150 ton-per-day groundwood mill. Plans have also been announced for a new $45 million pulpmill in the Minnesota-Ontario border area. If the mill opens on schedule in 1971, pulping capacity in and adjacent to the Lake States will be significantly increased, and many additional mill and woods jobs created.

Review of Pulpwood Production by States, 1968

Wisconsin provided 36 percent of the 1968 Lake States harvest, Michigan 33 percent, and Minnesota 31 percent.

The distribution of the pulpwood harvest is shown in two ways: first, the amount of

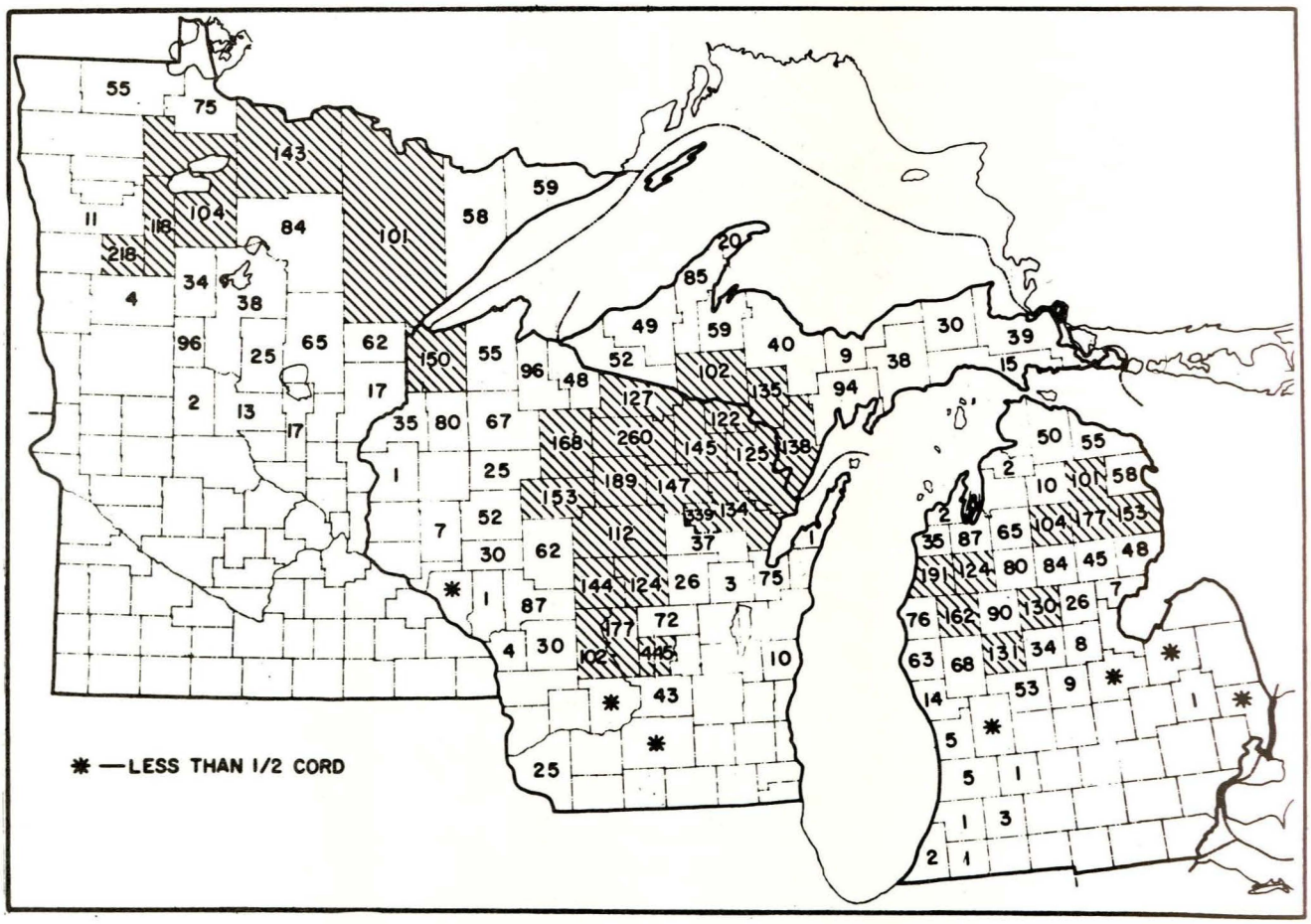


Figure 2. — Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1968. Crosshatching shows counties that supplied 100 or more cords of pulpwood per 1,000 acres of stocked commercial forest land.

pulpwood cut relative to commercial forest area, and second, the amount of pulpwood cut relative to the merchantable volume in major pulpwood species. The pulpwood cut per 1,000 acres of stocked commercial forest land was greatest in central and northeast Wisconsin, in three Upper Michigan counties bordering Wisconsin, in scattered counties in northern Lower Michigan, and in northern Minnesota (fig. 2). The harvest per 1,000 cords of merchantable volume in principal pulpwood species was greatest in central Wisconsin and least in southern Wisconsin (fig. 3).

Cutting intensified in central Wisconsin. — Although 1968 Wisconsin pulpwood output fell 119,000 cords from 1967, output in central Wisconsin increased 38,000 cords. Only 3 percent of the harvest was shipped out-of-State. Oneida, Price, and Douglas County loggers cut the largest pulpwood volume. In Marquette County, production jumped from 5,000 cords in 1967 to 30,000 cords in 1968.

Michigan Upper Peninsula output plunges 233,000 cords. — The effect of inventory adjustments in Wisconsin was most strongly felt in the Upper Peninsula of Michigan, where pulpwood shipments to Wisconsin were off

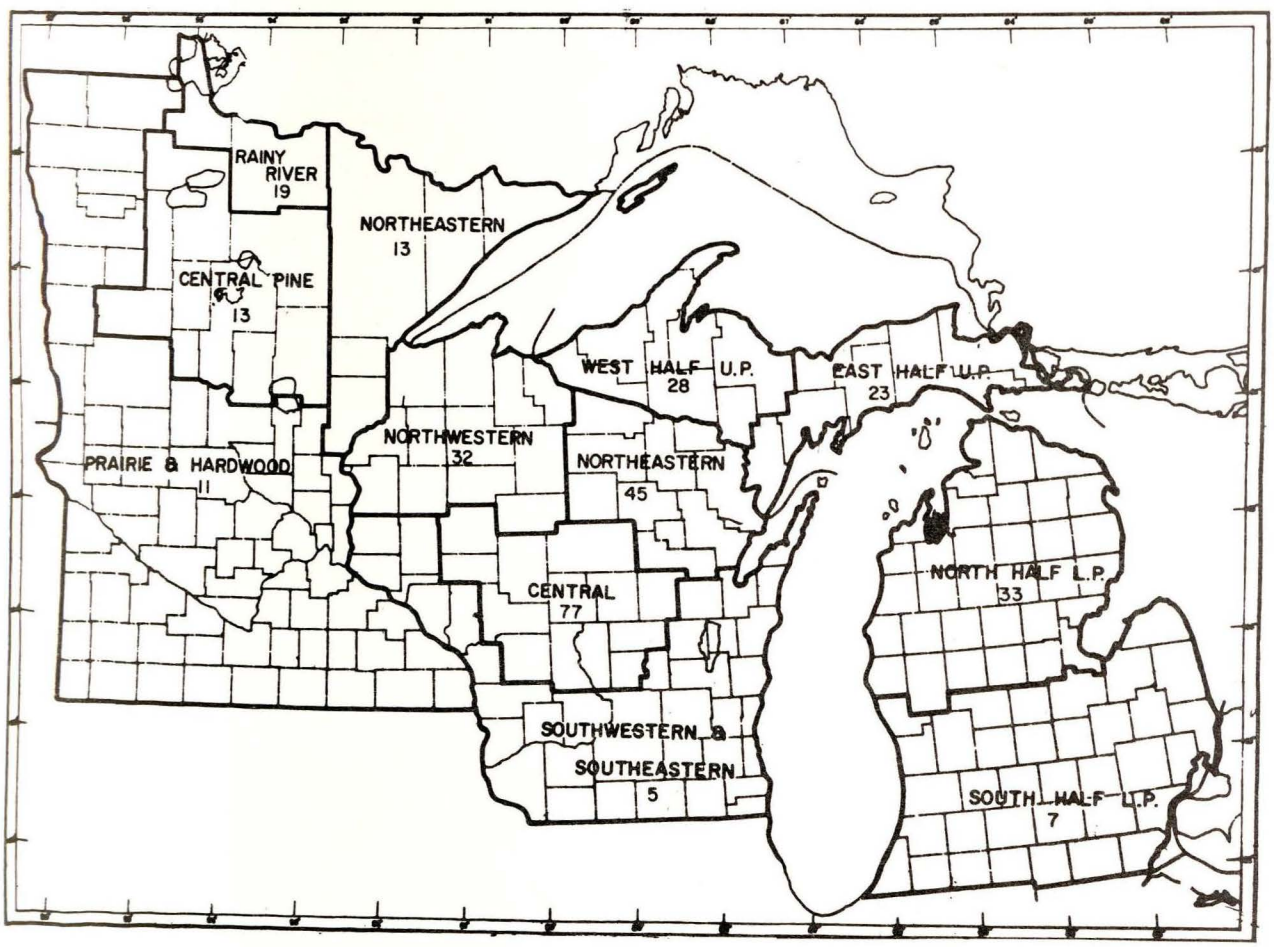


Figure 3. — Cords of pulpwood bolts and logs harvested per 1,000 cords of merchantable volume in principal pulpwood species, by Forest Survey Unit, 1968. The heavy lines delineate the boundaries of the Forest Survey Units in each State.

205,000 cords compared with 1967. Four-fifths of the Upper Peninsula pulpwood cut was delivered to Wisconsin mills.

In the Lower Peninsula, which was unaffected by Wisconsin procurement decisions, pulpwood production rose 57,000 cords from the 1967 level. For the first time in at least 10 years, Lower Michigan pulpwood production was higher than Upper Peninsula production.

Minnesota harvest drops; Central Pine Unit most affected. — Minnesota pulpwood production declined 118,000 cords in 1968. In the Central Pine Unit, the roundwood harvest dwindled 93,000 cords. Wisconsin mills received 44 percent less pulpwood from Minnesota than in 1967, but shipments of local wood to Minnesota mills were up slightly. Leading pulpwood-producing counties were St. Louis, Koochiching, and Itasca.

CENTRAL STATES

Pulpwood production and receipts were the highest ever recorded in the Central States. The 333,000 cords produced in 1968 was nearly one-third higher than the output in 1967 (table 4). At least three factors accounted for the increase: first, new and rebuilt paper machines required more wood pulp, thus a larger percentage of pulping capacity was utilized than in 1967. Second, the product mix was changed to one using more pulpwood and less substitute materials. Finally, one company that had not received pulpwood for several years, reported wood receipts in 1968. Only 18,000 cords were exported from the region, of which 15,000 cords were hardwood residues.

Fifteen Central States pulpmills received a total of 78,000 more cords of pulpwood in 1968 than in 1967. Nine-tenths of the additional wood receipts originated in the Central States.

Pulpwood Output from Residues Climbs 82 Percent

Pulpwood production from plant residues in the Central States rose 55,000 cords and accounted for more than one-third of the total production in the region. About twice as many cords of hardwood plant residues from Illinois and Indiana were sold to pulpmills in 1968 than in 1967, and about two and one-half times as many cords from Missouri.

The region's roundwood harvest rose 25,000 cords in 1968. Three out of four roundwood cords were cut in Indiana and Illinois, as shown in the 5-year summary below:

In thousand cords

State	*1964*	*1965*	*1966*	*1967*	*1968*
Illinois	105	77	97	69	76
Indiana	85	82	94	69	87
Iowa	33	25	27	27	25
Missouri	23	20	19	21	23
Total	246	204	237	186	211

Both soft and hard hardwoods shared in the roundwood harvest expansion.[3] Most of the gain in soft hardwood cutting was in Illinois, while most of the gain in hard hardwood cutting was shared equally by Indiana and Illinois.

Of the 111 pulpwood-producing counties, 39 were in Illinois, 39 in Indiana, 19 in Missouri, and 14 in Iowa (fig. 4). No county cut over 11,500 cords of pulpwood. Top-producing counties in each State were Lawrence and Gibson in Indiana, Wabash and Union in Illinois, Saline and Howard in Missouri, and Lee and Dubuque in Iowa.

Nearly 2 Out of 5 Cords Received Are Residues

Pulpwood shipments to Central States mills rose 27 percent in 1968. Of this increase, 70 percent was residues from wood-using plants. Illinois pulpmills bought 65 percent of the residues, most of which was received as chips. The increment in volume of residues purchased by Central States pulpmills in 1968 over 1967 equaled the entire volume of residues purchased in 1966 (table 5). Since 1964, procurement of residue by regional mills has risen more than 100,000 cords.

Although regional roundwood receipts climbed in 1968, they have stayed between 200,000 and 250,000 cords for at least 6 years. Meanwhile, sawmills, veneer mills, cooperage mills, and other wood-using plants have found the pulpmills to be a rapidly expanding market for their slabs, edgings, veneer cores, sawdust, and wood flour.

[3] *Soft hardwoods include species such as elm, basswood, soft maple, yellow-poplar, and cottonwood. Hard hardwoods include oak, hard maple, beech, and hickory.*

Table 4. — *Central States pulpwood production and receipts, by State, 1968*
(In standard cords, unpeeled)[1]

Species group and destination	Production by States 2/					Imports			Total receipts
	Illinois	Indiana	Iowa	Missouri	Region	Lake States	Other U. S.	Total imports	
Softwoods									
Illinois	504	--	--	--	504	--	--	--	504
Ind., Iowa, Mo. 3/	--	--	--	--	--	--	--	--	--
Exported 4/	--	53	--	--	53	--	--	--	--
Total	504	53	--	--	557	--	--	--	504
Soft hardwoods									
Illinois	35,761	1,302	--	544	37,607	2,222	1,111	3,333	40,940
Ind., Iowa, Mo.	8,989	38,178	12,035	19,409	78,611	1,777	3,956	5,733	84,344
Exported 4/	--	82	--	364	446	--	--	--	--
Total	44,750	39,562	12,035	20,317	116,664	3,999	5,067	9,066	125,284
Hard hardwoods									
Illinois	21,904	3,927	--	1,050	26,881	--	--	--	26,881
Ind., Iowa, Mo.	8,532	41,424	12,842	2,155	64,953	3,000	3,936	6,936	71,889
Exported 4/	--	1,947	--	--	1,947	--	--	--	--
Total	30,436	47,298	12,842	3,205	93,781	3,000	3,936	6,936	98,770
Total roundwood									
Illinois	58,169	5,229	--	1,594	64,992	2,222	1,111	3,333	68,325
Ind., Iowa, Mo.	17,521	79,602	24,877	21,564	143,564	4,777	7,892	12,669	156,233
Exported 4/	--	2,082	--	364	2,446	--	--	--	--
Total	75,690	86,913	24,877	23,522	211,002	6,999	9,003	16,002	224,558
Residues, softwood									
Illinois	231	--	2,833	--	3,064	5,539	2,806	8,345	11,409
Ind., Iowa, Mo.	--	--	--	--	--	--	5,310	5,310	5,310
Exported 4/	--	--	--	--	--	--	--	--	--
Total	231	--	2,833	--	3,064	5,539	8,116	13,655	16,719
Residues, hardwood									
Illinois	26,965	--	--	38,765	65,730	2,925	11,562	14,487	80,217
Ind., Iowa, Mo.	12,040	16,782	9,012	249	38,083	5,454	917	6,371	44,454
Exported 4/	--	13,962	1,140	--	15,102	--	--	--	--
Total	39,005	30,744	10,152	39,014	118,915	8,379	12,479	20,858	124,671
All wood material									
Illinois	85,365	5,229	2,833	40,359	133,786	10,686	15,479	26,165	159,951
Ind., Iowa, Mo.	29,561	96,384	33,889	21,813	181,647	10,231	14,119	24,350	205,997
Exported 4/	--	16,044	1,140	364	17,548	--	--	--	--
Total	114,926	117,657	37,862	62,536	332,981	20,917	29,598	50,515	365,948

1/ Factors used in converting to standard green cords (128 cu. ft.) were: 4,500 pounds of soft hardwood roundwood; 5,000 pounds of hard-hardwood or coniferous roundwood; 4,100 pounds of softwood chips (green); 4,400 pounds of hardwood chips (green); 2,500 pounds of chips (all species, dry).

2/ Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.

3/ Combined to prevent disclosure of individual mill receipts.

4/ Pulpwood shipped to mills outside the region.

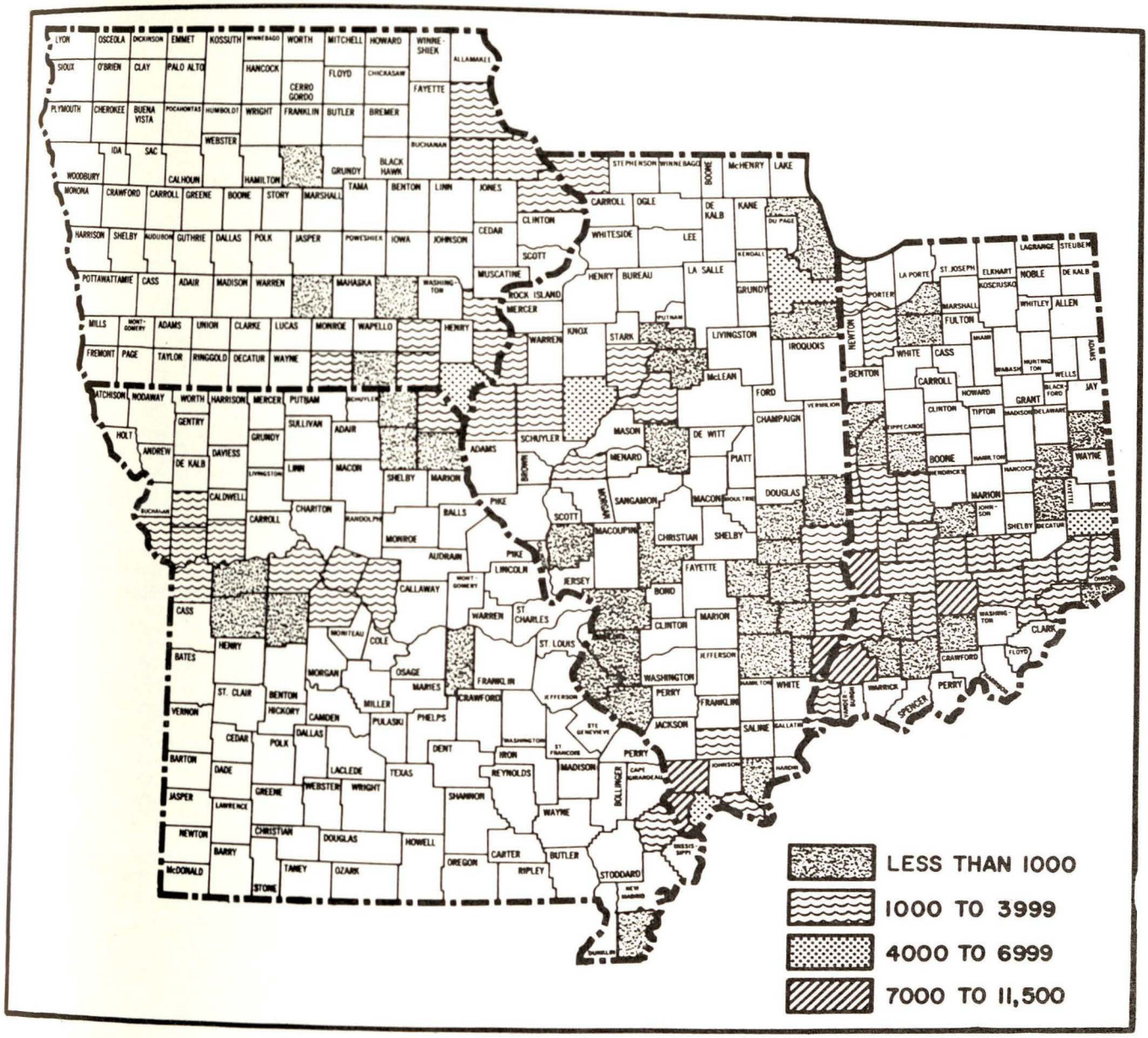


Figure 4.— Harvest of pulpwood bolts by counties, in standard cords, 1968.

Active Pulpmill Capacity Stable; New Mill in Kentucky

Fifteen active regional plants had a total of 1,560 tons per day of mechanical and semi-chemical pulping capacity in 1968 (table 6). No significant increases in capacity have been announced. However, a 200 ton-per-day kraft pulpmill began operation in May, 1969 in Kentucky adjacent to Indiana. Pulpwood suppliers in southern Indiana and Illinois may generate additional business from this new mill.

Table 5. — *Trends in receipts of roundwood and residues as pulpwood, Central States, 1964-1968*

Type of material and area	1964	1965	1966	1967	1968
Roundwood					
Illinois	82	68	84	63	68
Indiana, Iowa, Missouri	163	143	163	138	156
Total	245	211	247	201	224
Residue					
Illinois	25	22	25	50	92
Indiana, Iowa, Missouri	14	24	29	37	50
Total	39	46	54	87	142
All material	284	257	301	288	366

Table 6. — *Active woodpulp mills in the Central States by location, type of pulp produced, and capacity, 1968*

Company	Location	Mill capacity in tons per 24 hours[1/]				
		Total	Sulfite	Sulfate	Groundwood and other mechanical	Semi-chemical
Illinois:						
Philip Carey Corp.	Wilmington	30	--	--	30	--
Celotex Corp.	Peoria	190	--	--	190	--
Alton Box Board Co.	Alton	300	--	--	--	300
Bird & Son, Inc.	Chicago	40	--	--	40	--
Certain-Teed Products Corp.	East St. Louis	100	--	--	100	--
Flintkote Co., The	Mt. Carmel	40	--	--	40	--
Johns-Manville Products Corp.	Waukegan	65	--	--	65	--
GAF Corp.	Joliet	100	--	--	100	--
Total	8 plants	865	--	--	565	300
Indiana:						
Container Corp. of America	Carthage	120	--	--	--	120
Weston Paper & Manufacturing Co.	Terre Haute	250	--	--	--	250
Total	2 plants	370	--	--	--	370
Iowa:						
Celotex Corp.	Dubuque	90	--	--	--	90
Consolidated Packaging Corp.	Fort Madison	135	--	--	--	135
United States Gypsum Co.	Fort Dodge	2/	--	--	--	--
Total	3 plants	225	--	--	--	225
Missouri:						
Huebert Fiberboard, Inc.	Booneville	60	--	--	60	--
GAF Corp.	Kansas City	40	--	--	40	--
Total	2 plants	100	--	--	100	--
All States	15 plants	1,560	--	--	665	895

1/ Lockwood's Directory of the Paper and Allied Industries-1969, and 1969 Directory of the Forest Products Industry.

2/ Capacity not available.

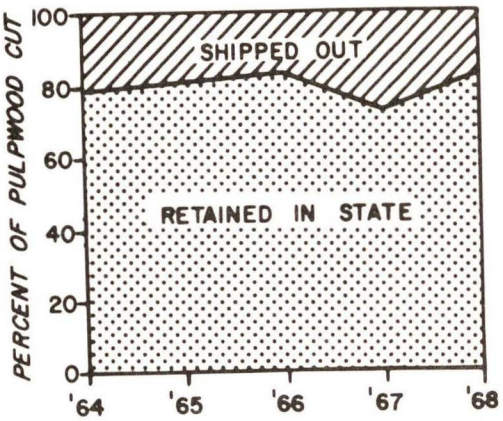
APPENDIX

Table 7. — *Lake States pulpwood production, by State of origin and destination, 1964-1968*

MINNESOTA

Year	Total cut	Destination of pulpwood: Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1964	1,062	856	193	--	13
1965	1,018	842	159	--	17
1966	1,174	970	193	*	11
1967	1,205	884	299	*	22
1968	1,087	900	166	*	21
5-year average	1,109	890	202	*	17

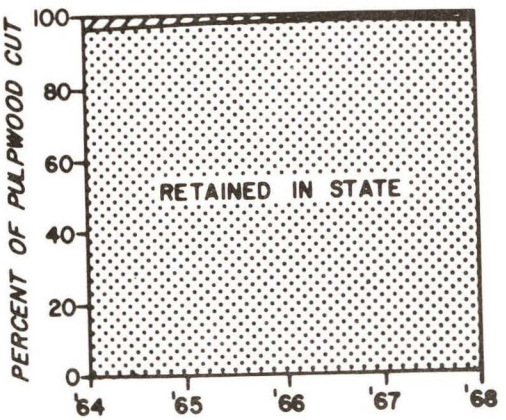
*Less than 500 cords.



WISCONSIN

Year	Total cut	Destination of pulpwood: Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1964	1,244	19	1,207	2	16
1965	1,253	8	1,225	1	19
1966	1,536	13	1,501	3	19
1967	1,416	15	1,387	*	14
1968	1,297	22	1,259	4	12
5-year average	1,349	15	1,316	2	16

*Less than 500 cords.



MICHIGAN

Year	Total cut	Destination of pulpwood: Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1964	1,321	--	588	730	3
1965	1,365	--	608	750	7
1966	1,570	1	666	901	2
1967	1,344	--	660	684	*
1968	1,168	--	455	702	11
5-year average	1,354	*	595	754	5

*Less than 500 cords.

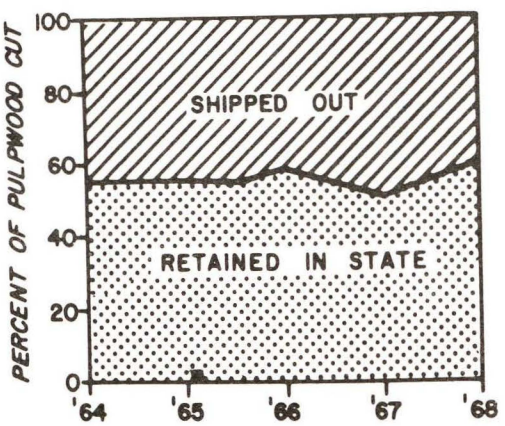


Table 8. — *Lake States pulpwood production, by Forest Survey Unit and destination by State, 1968*

(Thousand standard cords, roughwood basis)

MINNESOTA

District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
Northeastern	421	319	98	*	4
Central Pine	363	308	54	--	1
Rainy River	240	216	8	--	16
Hardwood & Prairie	63	57	6	--	--
Total	1,087	900	166	*	21

WISCONSIN

District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
Northeastern	603	--	599	4	--
Northwestern	410	9	401	--	--
Central	245	3	242	--	*
Southeastern & Southwestern	39	10	17	--	12
Total	1,297	22	1,259	4	12

MICHIGAN

District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
E. 1/2 Up. Pen.	213	--	158	49	6
W. 1/2 Up. Pen.	357	--	297	60	--
N. 1/2 Low. Pen.	549	--	--	549	--
S. 1/2 Low. Pen.	49	--	--	44	5
Total	1,168	--	455	702	11

*Less than 500 cords.

Table 9. — *Lake States pulpwood production by species, State, and Forest Survey Unit, 1964-1968*

(Thousand standard cords, roughwood basis)

State and district	ASPEN					BALSAM FIR				
	Annual production					Annual production				
	1964	1965	1966	1967	1968	1964	1965	1966	1967	1968
MINNESOTA										
Northeastern	176	177	205	205	203	26	22	20	26	12
Central Pine	172	186	272	265	218	32	23	35	30	18
Rainy River	91	96	123	108	131	31	28	25	20	13
Prairie & Hardwood	12	9	12	13	31	*	*	--	--	*
Total	451	468	612	591	583	89	73	80	76	43
WISCONSIN										
Northeastern	332	341	449	430	369	27	25	28	26	25
Northwestern	208	220	298	273	202	29	24	26	21	22
Central	61	45	61	35	55	1	1	1	*	4
Southeastern & Southwestern	2	2	2	1	3	*	--	--	*	--
Total	603	608	810	739	629	57	50	55	47	51
MICHIGAN										
E. 1/2 Up. Pen.	112	142	156	144	95	47	41	48	50	39
W. 1/2 Up. Pen.	206	207	222	237	167	33	30	37	38	22
N. 1/2 Low. Pen.	332	341	388	258	274	4	2	3	3	1
S. 1/2 Low. Pen.	25	14	10	7	5	--	--	--	--	--
Total	675	704	776	646	541	84	73	88	91	62
LAKE STATES	1,729	1,780	2,198	1,976	1,753	230	196	223	214	156

*Less than 500 cords.

(Continued on next page)

(Table 9 continued)

(Thousand standard cords, roughwood basis)

State and district	BIRCH					HEMLOCK				
	Annual production					Annual production				
	1964	1965	1966	1967	1968	1964	1965	1966	1967	1968
MINNESOTA										
Northeastern	--	--	--	1	*	--	--	--	--	--
Central Pine	*	*	1	2	1	--	--	--	--	--
Rainy River	--	--	--	--	--	--	--	--	--	--
Prairie & Hardwood	--	--	--	--	--	--	--	--	--	--
Total	*	*	1	3	1	--	--	--	--	--
WISCONSIN										
Northeastern	8	5	9	28	18	27	37	48	27	22
Northwestern	28	17	26	46	35	22	21	18	13	18
Central	5	2	4	10	3	3	2	3	2	4
Southeastern & Southwestern	*	*	--	*	*	--	--	--	--	*
Total	41	24	39	84	56	52	60	69	42	44
MICHIGAN										
E. 1/2 Up. Pen.	14	5	3	3	2	10	9	21	16	9
W. 1/2 Up. Pen.	6	1	2	2	*	49	55	78	44	36
N. 1/2 Low. Pen.	18	26	8	6	11	--	--	--	--	--
S. 1/2 Low. Pen.	--	--	--	--	--	--	--	--	--	--
Total	38	32	13	11	13	59	64	99	60	45
LAKE STATES	79	56	53	55	70	111	124	168	102	89

*Less than 500 cords.

(Continued on next page)

(Table 9 continued)

(Thousand standard cords, roughwood basis)

State and district	JACK PINE[1/] Annual production					SPRUCE Annual production				
	1964	1965	1966	1967	1968	1964	1965	1966	1967	1968
MINNESOTA										
Northeastern	129	101	138	108	121	118	106	78	93	66
Central Pine	49	56	85	69	62	50	38	31	45	31
Rainy River	17	12	15	11	12	88	92	61	79	60
Prairie & Hardwood	9	12	18	14	8	1	2	2	1	*
Total	204	181	256	202	203	257	238	172	218	157
WISCONSIN										
Northeastern	48	57	58	45	46	13	10	14	10	7
Northwestern	51	76	92	61	57	6	5	4	3	3
Central	68	72	64	67	94	*	*	*	*	1
Southeastern & Southwestern	1	1	1	1	2	*	--	--	--	--
Total	168	206	215	174	199	19	15	18	13	11
MICHIGAN										
E. 1/2 Up. Pen.	51	66	63	40	39	33	28	31	33	23
W. 1/2 Up. Pen.	40	47	47	36	33	35	36	42	40	16
N. 1/2 Low. Pen.	106	110	138	115	131	3	1	1	2	*
S. 1/2 Low. Pen.	1	1	2	2	2	--	--	--	--	--
Total	198	224	250	193	205	71	65	74	75	39
LAKE STATES	570	611	721	569	607	347	318	264	306	207

*Less than 500 cords.

1/ Includes small quantity of red and white pine.

(Continued on next page)

(Table 9 continued)

(Thousand standard cords, roughwood basis)

MINNESOTA

State and district	TAMARACK					MISC. HARDWOODS				
	Annual production					Annual production				
	1964	1965	1966	1967	1968	1964	1965	1966	1967	1968
Northeastern	7	5	1	6	4	3	4	4	9	7
Central Pine	5	6	6	27	16	29	24	13	6	5
Rainy River	--	--	*	4	4	9	10	13	23	9
Prairie & Hardwood	*	1	*	3	1	3	3	1	1	2
Total	12	12	7	40	25	44	41	31	39	23
WISCONSIN										
Northeastern	1	1	1	2	3	44	56	80	64	60
Northwestern	3	3	2	1	2	93	56	70	62	50
Central	*	--	*	--	*	75	77	84	71	68
Southeastern & Southwestern	--	*	--	--	--	12	9	8	6	7
Total	4	4	3	3	5	224	198	242	203	185
MICHIGAN										
E. 1/2 Up. Pen.	2	2	1	1	1	7	8	16	6	3
W. 1/2 Up. Pen.	1	1	*	*	1	60	63	70	79	48
N. 1/2 Low. Pen.	--	*	--	--	--	76	75	103	112	116
S. 1/2 Low. Pen.	--	--	--	--	--	3	3	5	2	4
Total	3	3	1	1	2	146	149	194	199	171
LAKE STATES	19	19	11	44	32	414	388	467	484	379

*Less than 500 cords.

(Continued on next page)

(Table 9 continued)

(Thousand standard cords, roughwood basis)

State and district	RESIDUES & CHIPS[1] Annual production					ALL SPECIES[2] Annual production				
	1964	1965	1966	1967	1968	1964	1965	1966	1967	1968
MINNESOTA										
Northeastern	--	1	3	11	8	459	416	449	459	421
Central Pine	2	2	6	9	12	339	335	449	453	363
Rainy River	--	--	--	4	11	236	238	237	249	240
Prairie & Hardwood	3	2	6	12	21	28	29	39	44	63
Total	5	5	15	36	52	1,062	1,018	1,174	1,205	1,087
WISCONSIN										
Northeastern	43	51	49	41	53	543	583	736	673	603
Northwestern	15	8	7	22	21	455	430	543	502	410
Central	12	6	5	22	16	225	205	222	207	245
Southeastern & Southwestern	6	23	24	26	27	21	35	35	34	39
Total	76	88	85	111	117	1,244	1,253	1,536	1,416	1,297
MICHIGAN										
E. 1/2 Up. Pen.	6	5	11	2	2	282	306	350	295	213
W. 1/2 Up. Pen.	38	26	23	32	34	468	466	521	508	357
N. 1/2 Low. Pen.	--	--	3	11	16	539	555	644	507	549
S. 1/2 Low. Pen.	3	20	38	23	38	32	38	55	34	49
Total	47	51	75	68	90	1,321	1,365	1,570	1,344	1,168
LAKE STATES	128	144	175	215	259	3,627	3,636	4,280	3,965	3,552

1/ Not reported by district. Prorated on basis of most recent lumber output figures and location at shipping points.

2/ Including residues and chips.

Table 10. — *Lake States pulpwood production by county and species, 1968*

(Thousand standard cords, roughwood basis)

WISCONSIN

District & county 1/	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residues & chips 2/
NORTHEASTERN:										
Florence	30	24	1	*	2	1	1	--	1	
Forest	73	47	5	2	6	2	2	*	9	
Langlade	50	35	1	2	1	1	*	*	10	
Lincoln	61	38	3	2	2	4	1	1	10	
Marinette	67	56	2	1	*	2	1	1	4	
Menominee	39	32	*	*	5	1	--	*	1	
Oconto	43	36	*	1	1	3	*	*	2	
Oneida	125	68	9	5	2	23	2	1	15	
Shawano	11	5	1	*	2	*	*	*	3	
Vilas	51	28	3	5	1	9	*	*	5	
Total	603	369	25	18	22	46	7	3	60	53
NORTHWESTERN:										
Ashland	47	27	7	2	3	2	1	*	5	
Bayfield	40	21	1	5	1	11	*	*	1	
Burnett	10	2	--	--	--	8	*	*	*	
Douglas	76	56	*	1	--	19	*	*	*	
Iron	18	6	3	2	3	*	1	*	3	
Polk	*	--	*	--	--	*	--	*	--	
Price	81	34	6	13	5	2	1	1	19	
Rusk	8	6	*	*	*	--	*	*	1	
Sawyer	38	13	4	9	2	3	*	*	7	
Taylor	46	23	1	3	4	1	*	1	13	
Washburn	26	14	*	*	*	11	*	*	1	
Total	410	202	22	35	18	57	3	2	50	21
CENTRAL:										
Adams	35	1	--	--	--	18	*	--	16	
Chippewa	11	10	*	*	*	*	--	*	1	
Clark	16	6	--	1	*	3	--	*	6	
Eau Claire	4	1	--	--	--	3	--	*	--	
Jackson	26	1	--	--	--	23	--	--	2	
Juneau	23	4	--	*	--	15	--	*	4	
Marathon	33	10	1	2	2	2	*	--	16	
Marquette	30	12	3	--	2	9	--	--	4	
Monroe	6	*	--	--	--	6	--	--	*	
Portage	15	3	*	*	*	5	1	--	6	
Waupaca	3	2	*	*	*	*	*	--	1	
Waushara	7	1	--	--	--	3	--	--	3	
Wood	20	4	*	*	*	7	--	--	9	
Total	245	55	4	3	4	94	1	*	68	16

(Continued on next page)

(Table 10 continued)

(Thousand standard cords, roughwood basis)

WISCONSIN (continued)

District & county 1/	All species	Aspen	Balsam	Birch	Hem-lock	Pine	Spruce	Tam-arack	Misc. hdwds.	Residues & chips 2/
SOUTHWESTERN:										
Dunn	1	1	--	--	--	*	--	--	--	
Grant	4	--	--	--	--	--	--	--	4	
La Crosse	1	--	--	--	--	1	--	--	--	
Sauk	*	--	--	--	--	*	--	--	--	
Trempealeau	*	*	--	--	--	*	--	--	--	
Total	22	1	--	--	--	1	--	--	4	16
SOUTHEASTERN:										
Brown	2	2	--	*	*	*	--	--	--	
Columbia	3	*	--	--	--	*	--	--	3	
Dane	*	*	--	--	--	--	--	--	--	
Door	*	*	--	--	--	--	--	--	*	
Outagamie	*	*	--	--	--	--	--	--	*	
Sheboygan	1	--	--	--	--	1	--	--	--	
Total	17	2	--	*	*	1	--	--	3	11
State total	1,297	629	51	56	44	199	11	5	185	117

1/ Includes only those counties that supplied pulpwood in 1968.
2/ County figures are not available.
* Less than 500 cords.

(Table 10 continued)

(Thousand standard cords, roughwood basis)

MICHIGAN

District & county 1/	All species	Aspen	Balsam	Birch	Hem-lock	Pine	Spruce	Tam-arack	Misc. hdwds.	Residues & chips 2/
E. 1/2 UP. PEN.										
Alger	5	1	1	--	*	3	*	--	*	
Chippewa	30	9	5	*	2	8	5	1	--	
Delta	58	23	13	1	3	11	5	*	2	
Luce	15	2	1	--	2	8	2	*	--	
Mackinac	9	2	3	--	*	2	2	*	--	
Menominee	70	52	10	*	1	1	5	*	1	
Schoolcraft	24	6	6	1	1	6	4	*	*	
Total	213	95	39	2	9	39	23	1	3	2
W. 1/2 UP. PEN.										
Baraga	31	16	1	--	4	2	1	*	7	
Dickinson	60	44	7	--	2	3	4	*	*	
Gogebic	33	17	2	*	7	1	*	*	6	
Houghton	47	16	2	*	16	2	2	*	9	
Iron	69	46	4	*	3	1	2	1	12	
Keweenaw	4	*	2	--	--	--	2	*	--	
Marquette	44	11	4	*	1	24	4	*	*	
Ontonagon	35	17	*	*	3	*	1	*	14	
Total	357	167	22	*	36	33	16	1	48	34
N. 1/2 LOW. PEN.										
Alcona	48	33	*	3	--	3	*	--	9	
Alpena	12	7	*	2	--	*	*	--	3	
Arenac	1	1	--	--	--	--	--	--	--	
Benzie	4	3	--	--	--	--	--	--	1	
Charlevoix	*	*	--	--	--	--	--	--	--	
Cheboygan	16	9	*	2	--	2	*	--	3	
Clare	29	24	--	--	--	3	--	--	2	
Crawford	31	4	--	--	--	27	--	--	*	
Gladwin	5	2	--	--	--	1	--	--	2	
Grand Traverse	14	9	--	--	--	3	--	--	2	
Iosco	12	4	--	--	--	8	--	--	*	
Isabella	3	3	--	--	--	--	--	--	*	
Kalkaska	17	10	--	--	--	6	--	--	1	
Lake	47	12	--	--	--	16	--	--	19	
Leelanau	*	--	--	--	--	*	--	--	*	
Manistee	41	14	--	--	--	1	--	--	26	
Mason	12	4	--	--	--	1	--	--	7	
Mecosta	19	16	--	--	--	*	--	--	3	
Midland	1	1	--	--	--	--	--	--	*	
Missaukee	18	13	--	--	--	2	--	--	3	
Montmorency	29	18	*	1	--	4	*	--	6	
Newaygo	20	10	--	--	--	3	--	--	7	
Oceana	9	3	--	--	--	2	--	--	4	
Ogemaw	11	5	--	*	--	5	--	--	1	
Osceola	15	11	--	--	--	*	--	--	4	
Oscoda	53	25	*	1	--	23	*	--	4	
Otsego	2	--	--	--	--	2	--	--	--	
Presque Isle	15	7	1	2	--	2	*	--	3	
Roscommon	22	10	--	--	--	9	--	--	3	
Wexford	27	16	--	--	--	8	--	--	3	
Total	549	274	1	11	--	131	*	--	116	16

(Continued on next page)

(Table 10 continued)

(Thousand standard cords, roughwood basis)

MICHIGAN (continued)

District & county 1/	All species	Aspen	Balsam	Birch	Hem-lock	Pine	Spruce	Tam-arack	Misc. hdwds.	Residues & chips 2/
S. 1/2 LOW. PEN.										
Allegan	1	*	--	--	--	--	--	--	1	
Barry	*	*	--	--	--	--	--	--	*	
Berrien	*	--	--	--	--	--	--	--	*	
Cass	*	*	--	--	--	--	--	--	*	
Gratiot	1	1	--	--	--	--	--	--	--	
Kalamazoo	*	*	--	--	--	*	--	--	*	
Kent	*	*	--	--	--	--	--	--	*	
Lapeer	*	*	--	--	--	--	--	--	--	
Montcalm	7	4	--	--	--	1	--	--	2	
Muskegon	2	*	--	--	--	1	--	--	1	
Ottawa	*	*	--	--	--	*	--	--	*	
Saginaw	*	--	--	--	--	*	--	--	--	
St. Clair	*	*	--	--	--	--	--	--	--	
Tuscola	*	*	--	--	--	--	--	--	--	
Van Buren	*	--	--	--	--	--	--	--	*	
Total	49	5	--	--	--	2	--	--	4	38
State total	1,168	541	62	13	45	205	39	2	171	90

1/ Includes only those counties that supplied pulpwood in 1968.
2/ County figures are not available.
* Less than 500 cords.

(Table 10 continued)

(Thousand standard cords, roughwood basis)

MINNESOTA

District & county 1/	All species	Aspen	Balsam	Birch	Pine	Spruce	Tamarack	Misc. hdwds.	Residues & chips 2/
NORTHEASTERN:									
Carlton	19	17	1	*	1	*	*	--	
Cook	39	*	1	--	6	32	--	--	
Lake	58	16	1	--	26	15	*	--	
Pine	7	4	*	--	1	--	--	2	
St. Louis	290	166	9	*	87	19	4	5	
Total	421	203	12	*	121	66	4	7	8
CENTRAL PINE:									
Aitkin	45	35	2	--	1	3	4	*	
Becker	1	1	*	--	*	*	*	--	
Beltrami	85	59	6	1	8	9	2	*	
Cass	35	16	1	*	9	1	4	4	
Clearwater	39	29	1	--	4	2	2	1	
Crow Wing	10	3	*	--	7	*	--	--	
Hubbard	14	4	*	--	9	*	1	--	
Itasca	111	67	8	--	17	16	3	*	
Wadena	11	4	--	--	7	--	--	--	
Total	363	218	18	1	62	31	16	5	12
RAINY RIVER:									
Koochiching	199	128	13	--	8	39	2	9	
Lake of the Woods	30	3	*	--	4	21	2	--	
Total	240	131	13	--	12	60	4	9	11
HARDWOOD:									
Mille Lacs	2	1	--	--	--	--	*	1	
Morrison	2	2	*	--	--	*	--	--	
Todd	*	*	--	--	--	*	--	--	
Total	25	3	*	--	--	*	*	1	21
PRAIRIE:									
Mahnomen	26	25	--	--	--	--	*	1	
Polk	1	*	--	--	--	--	1	--	
Roseau	11	3	--	--	8	--	*	--	
Total	38	28	--	--	8	--	1	1	--
State total	1,087	583	43	1	203	157	25	23	52

1/ Includes only those counties that supplied pulpwood in 1968.
2/ County figures are not available.
* Less than 500 cords.

Blyth, James E.

1969. Pulpwood production in the North Central Region, by county, 1968. N. Cent. Forest Exp. Sta., St. Paul, Minn. 22 p., illus. (U.S.D.A. Forest Serv. Resource Bull. NC-8)

This report presents 1968 pulpwood production and receipt data for the Lake States and Central States. Pulpwood production for the Lake States is given by species for each county, and 1968 production by Forest Survey Unit is compared to that of previous years. For the Central States, 1968 pulpwood production and receipt data are presented by state, and four production classes are shown by county.

OXFORD: 861.0(77):721:792

Blyth, James E.

1969. Pulpwood production in the North Central Region, by county, 1968. N. Cent. Forest Exp. Sta., St. Paul, Minn. 22 p., illus. (U.S.D.A. Forest Serv. Resource Bull. NC-8)

This report presents 1968 pulpwood production and receipt data for the Lake States and Central States. Pulpwood production for the Lake States is given by species for each county, and 1968 production by Forest Survey Unit is compared to that of previous years. For the Central States, 1968 pulpwood production and receipt data are presented by state, and four production classes are shown by county.

OXFORD: 861.0(77):721:792

ABOUT THE FOREST SERVICE . . .

As our Nation grows, people expect and need more from their forests — more wood; more water, fish, and wildlife; more recreation and natural beauty; more special forest products and forage. The Forest Service of the U.S. Department of Agriculture helps to fulfill these expectations and needs through three major activities:

- Conducting forest and range research at over 75 locations ranging from Puerto Rico to Alaska to Hawaii.
- Participating with all State forestry agencies in cooperative programs to protect, improve, and wisely use our Country's 395 million acres of State, local, and private forest lands.
- Managing and protecting the 187-million acre National Forest System.

The Forest Service does this by encouraging use of the new knowledge that research scientists develop; by setting an example in managing, under sustained yield, the National Forests and Grasslands for multiple use purposes; and by cooperating with all States and with private citizens in their efforts to achieve better management, protection, and use of forest resources.

Traditionally, Forest Service people have been active members of the communities and towns in which they live and work. They strive to secure for all, continuous benefits from the Country's forest resources.

For more than 60 years, the Forest Service has been serving the Nation as a leading natural resource conservation agency.